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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/765,459

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Hirokazu Tajima

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8752

25231

7590

03/08/2007

MARSH, FISCHMANN & BREYFOGLE LLP

3151 SOUTH VAUGHN WAY

SUITE 411

AURORA, CO 80014

EXAMINER

SHAKERI, HADI

ART UNIT

PAPER NUMBER

3723

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/765,459

Applicant(s)

TAJIMA ET AL.

Examiner

Hadi Shakeri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-10, 12 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 is/are allowed.
- 6) ☒ Claim(s) 8-10, 12 and 16-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20061215 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimura et al. (6,371,834) in view of anyone of Petroski et al. (7,025,668), Chechik et al. (6,284,114) or Hulslander et al. (3,284,274).

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Fujimura et al. meets all of the limitations of claim 16, i.e., a method of manufacturing a glass substrate by polishing the glass utilizing an abrasive cloth in the final step after first step of rough polishing (lapping and/or grinding) which may comprise a primary step of polishing and a final step of polishing in which in the primary step abrasives of about 1.5 microns are used and in the final step abrasives of about 0.2 microns are utilized (e.g., in the examples), except for disclosing a pad comprising a nap layer with inner and outer layer with the pores as recited. It also discloses that the abrasive cloth used is not particularly restricted to any specific one (03:58-60). Petroski et al., Chechik et al. or Hulslander et al, each discloses pads having smaller open pores on the top surface and a layer under with relatively larger pores or voids.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Fujimura et al. by using pads as taught by anyone of Petroski et al., Chechik et al. or Hulslander et al. to as an alternative means depending on the operational parameters, e.g., cost.

With regards to claim 17, further modifying the method by rinsing the workpiece in between steps are considered obvious to one ordinary skill in the art to remove debris prior to the next step.

4. Claims 8, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over modified Fujimura et al. in view of anyone of Petroski et al., Chechik et al. or Hulslander et al. and Hsu et al. (6,890,244).

Fujimura et al. modified by anyone of Petroski et al., Chechik et al. or Hulslander et al., described above, meets all of the limitations of the claim 8, except for disclosing the opening size of the pores. It also discloses that it uses 0.2 micron abrasives (05:26). Hsu et al. teaches polishing pads for use in CMP wherein the size of the pores are dictated by the size of the abrasive particles used, e.g., for 100 to 200 nm particles, pore sizes of 30 to 100 microns are

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preferred. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to further modify the modified invention of Fujimura et al. with the pore sizes, e.g., 30-100 microns, as taught by Hsu et al. to enhance the operation for the abrasive used.

Regarding claim 12, Fujimura et al. as modified meets the limitations, i.e., glass having a surface roughness of 0.15 nm (Table 3).

Regarding the density or the number of pores, which in turn also defines the compression of the pad, Hsu teaches the ratio of fibers to the matrix depends on the intended use, i.e., higher ratio for more compressive pad. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use e.g., 500 pores per mm square, or to select a desired compressibility e.g. 50 micron, dependent on work-piece/operational parameters, and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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6. Claims 8-10, 12 and 16-18 are finally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,749,487 in view of prior art cited above. The mentioned US Patent reads over the claimed subject matter of claims 8-13 as best understood, except for specific pad properties, obvious to one of ordinary skill in view of prior art cited above.

7. Claims 8-10, 12 and 16-18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/530,647 in view of prior art cited above. The claims in the pending application meets all of the limitations of the above claims, except for characteristics of the pad, obvious modifications to one of ordinary skill in the art in view of the cited prior art as described above.

This is a provisional obviousness-type double patenting rejection.

Allowable Subject Matter

8. Claim 15 is allowed.

9. The following is a statement of reasons for the indication of allowable subject matter: while modifying prior art of record for particular desired properties, e.g., size of the pores and compressibility, is considered obvious to one of ordinary skill in the art depending on workpiece/operational parameters without undue experimentation, modifying prior art to obtain all of the physical characteristics of the pad as recited in claim 15, would be hindsight.

Response to Arguments

10. Applicant's arguments filed December 15, 2006 have been fully considered but they are not persuasive.

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In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

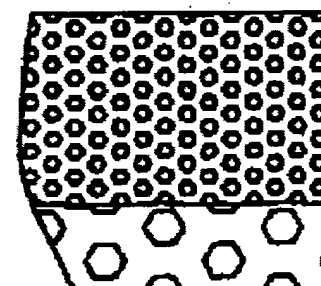
With regards to the base reference applicant argues that Fujimura et al. discloses using hard abrasive cloth as the preferred embodiment and apparently argues that as such it teaches away from the invention and/or it cannot be modified by the teaching references as applied. This is not found persuasive since preferred embodiment does not exclude other modes. In this case the base reference specifically discloses that any type of pad may be used, and as indicated above using pads as though by the teaching references would have been obvious to one of ordinary skill in the art depending on the operational/workpiece parameterize .g., cost, availability, etc.

With regards to Hulslander et al., applicant argues that Hulslander is useful as a garment and upholstery material and there is no disclosure for such modification. This is not found persuasive, since the cellular polymeric sheet material as taught by Hulslander et al. is commonly used and referenced in the polishing art and the disclosure is commonly used in relation to polishing pads, see evidentiary references, e.g., Fawcett et al. (6,899,602); Scott et al. (6,623,337); Urbanavage et al. (6,419,556); Hoffstein et al. (4,841,680) or Chechik et al. Applicant further argues that even if properly combined the combination would not disclose all of the limitations of claim 8 (and 16) because once the top layer is removed there would be no larger closed cell. This is found not persuasive either, since while the top cells once opened or cut would not meet the larger closed cell, the closed cell immediately below the top surface that have not had a top surface cut, would meet the limitations, see for example Fig. 6.

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With regards to Chechik et al., applicant argues that Chechik et al. is directed to polishing pads for semiconductor devices and not glass. This is not persuasive, Chechik et al. discloses the use of the pad for silicon semiconductor substrates, which includes glass. Applicant further argues that it fails to disclose larger closed cell. Chechik et al. discloses that one of the advantages of the invention is to control the presence of the bubbles and to use them to an advantage (e.g. to control the compressibility of the pad), for production of uniform, homogenous porous material. It further discloses that the open pores on the pad surface provide a micortexture on the pad.

With regards to Petroski et al, applicant again argues that Petroski et al is directed to CMP process of semiconductor wafers. This is not persuasive as indicated above because polishing pads are used in the art for polishing, silicon wafer, glass wafers, metal wafers and the like, see for example evidently reference Kudo et al



(5,879,225), Rea (4,645,561) or cited reference in Petroski et al., Chen et al. (6,383,066). Fig. 1 of Petroski et al clearly discloses a polishing pad having micro pores on the outer surface (first row of upper pores) and larger closed cells on an inner layer.

The arguments with regards to Double Patenting over US 6,852,003 and US 6,932,677 are persuasive; however, US 6,749,487 discloses and claims a method of polishing a glass including the polishing steps except for the type of the pad, which is considered obvious modification to one of ordinary skill in the art.

Conclusion

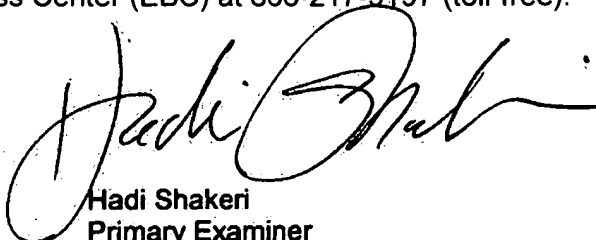
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is (571) 272-4495. The examiner can normally be reached on Monday-Thursday.

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The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

July 8, 2006

A handwritten signature in black ink, appearing to read 'Hadi Shakeri', is written over the printed name and title.

Hadi Shakeri
Primary Examiner
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